इंटरनेट मानक

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Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

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IS 13386 (1992): Specification for fire extinguisher 50 litre capacity , mechanical foam type [CED 22: Fire Fighting]

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भारतीय मानक

50 लिटर की क्षमता वाले अग्नि-शामकों की विशिष्टि - यांत्रिक झाग वाले

Indian Standard

FIRE EXTINGUISHER — 50-LITRE CAPACITY— MECHANICAL FOAM TYPE — SPECIFICATION

UDC 6'14·845·5

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

May 1992

Price Group 3

Fire Fighting Sectional Committee, CED 22

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

50 litre capacity fire extinguisher, mechanical foam type, is one of the larger versions of the fire extinguishers. This type of extinguisher in which foam is expanded by means of pressure produced from compressed or liquefied gas from pressure container fitted onto the extinguisher, is suitable for fighting fires in non-polar flammable liquids.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

AMENDMENT NO. 1 MARCH 2002
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50-LITRE CAPACITY — MECHANICAL FOAM TYPE — SPECIFICATION

(*Foreword*) — Insert the following clause before last para:

'A scheme for labelling environment friendly products known as ECO Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO Mark would be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolution No. 71 dated 21 February 1991 and No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with ECO logo, it shall also carry the ISI Mark of BIS besides meeting additional optional environment friendly requirements. For this purpose, the Standard Mark of BIS would be a single mark being a combination of the ISI Mark and the ECO logo. Requirements to be satisfied for a product to qualify for the BIS Standard Mark for ECO friendliness being included in the relevant published standards through an amendment. These requirements are optional; manufacturing units are free to opt for the ISI Mark alone also.

The amendment is based on the Gazette Notification No. 160 dated 1 April 1999 for Fire Extinguishers as environment friendly products published in the Gazette of the Government of India.'

(*Page* 4, *clause* 11.4) — Insert the following new clauses after 11.4 and renumber the subsequent clauses:

'12 OPTIONAL REQUIREMENTS FOR ECO MARK

12.1 General Requirements

12.1.1 Any fire extinguisher having BIS Standard Mark qualifies for consideration of ECO Mark.

12.1.2 The products manufacturer must produce the consent clearance as per provision of the *Water (Prevention and Control of Pollution) Act*, 1974, *Water (Prevention and Control of Pollution) Cess Act*, 1977 and *Air (Prevention and Control of Pollution) Act*, 1981 respectively, along with authorization if required under *Environment (Protection) Act*, 1986, and the Rules made thereunder to the Bureau of Indian Standards while applying for ECO Mark.

12.1.3 The products may display in brief the criteria based on which the product has been awarded ECO Mark.

12.1.4 The product may carry along with instructions for proper use so as to maximize product performance with statutory warning, if any, minimize waste and method of safe disposal.

12.1.5 The material used for product packaging (excluding refills) shall be recyclable, reusable or biodegradable.

12.1.6 The product must display a list of critical ingredients in descending order of quantity present in percent by weight. The list of such critical ingredients shall be identified by the Bureau of Indian Standards.

12.2 Specific Requirements

12.2.1 The fire extinguisher shall not contain any Ozone Depleting Substance (ODS) relevant to fire extinguishers industry as identified under the Montreal Protocol (Annex C).

12.2.2 Gas based extinguishing media once discharged in the atmosphere should not have atmospheric life time of more than a year (Annex D).

12.2.3 Chemical used should not have global warming potential (Annex E).

12.2.4 The metallic body and other metal parts of the fire extinguishers shall be free of lead or lead alloys.

12.2.5 The coating used for the metallic part shall not be formulated with mercury and mercury compounds or be tinted with pigments of lead, cadmium, chromium VI and their oxides. Excluded are natural impurities entailed by the production process up to the amount 0.1 percent by weight which are contained in the raw material.

NOTE — CO_2 extinguishers may be permitted till suitable substitutes are available.

ANNEX C

(*Clause* **12.2.1**)

LIST OF OZONE DEPLETING SUBSTANCES (ODS) CONTROLLED BY MONTREAL PROTOCOL

Trade Name	*ODP*
Halon 1211	3.0
Halon 1301	10.0
Halon 2402	6.0
CFC-11	1.0
CFC-12	1.0
CFC-113	0.8
CFC-114	1.0
CFC-115	0.6
CCl_4	1.1
$C_2H_3C_{13}$	0.1
CFC-13	1.0
CFC-111	1.0
CFC-112	1.0
CFC-211	1.0
CFC-212	1.0
CFC-213	1.0
CFC-214	1.0
CFC-215	1.0
CFC-216	1.0
CFC-217	1.0
Methyl Bromide	0.6

NOTE — ODP values are relative to CFC-11 which has been assigned arbitrary value of 1.0.

ANNEX D

(*Clause* 12.2.2)

LIST OF ATMOSPHERIC LIFE TIME OF GAS-BASED AGENTS

Trade Name	*Designation*	*Atmospheric Life Time (Year)*
Halon-13001	(CF 31)	<1 day
NAFS III	HCFC (Blend A)	12
FE 25	HCFC-125	36
FE 241	FCFC-124	6
FE 36	HFC-227 fa	250
FE 13	HFC-23	250
FM 200	HFC-227 EA	41
CEA 410	FC-3-1-10	2 600
Halon 1301	Halon 1301	65
Inergen	IG 541	—
Argonite	IG 55	—
Argon	IG 01	—

ANNEX E

(*Clause* 12.2.3)

LIST OF SUBSTANCES HAVING GLOBAL WARMING POTENTIAL (GWP)

Trade Name	*GWP (100 year)* V_s CO_2
Halon 1301	5 600
Inergen	—
Argonite	—
Argon	—
CEA 410	5 500
FM 200	3 300
FE 13	12 100
FE 36	8 000
FE 241	480
FE 25	3 200
NAFS III	1 450
CF 31	<5

(CED 22)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 SEPTEMBER 2002
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50-LITRE CAPACITY — MECHANICAL FOAM TYPE — SPECIFICATION

(*Page* 1, *clause* 7.4, *last line*) — Substitute 'fixed' *for* 'screwed'.

(*Page* 1, *clause* 7.5, *line* 7) — Insert 'maximum' after '6.5 mm'.

(*Page* 2, *clause* 7.13) — Insert the following after first sentence:

'Tolerance for wheeled carriage shall be 10 mm.'

(*Page* 2, *Table* 1, *Sl No.* 5) — Delete.

(*Page* 4, *clause* **10.3**, *line* 2) — Insert 'A' before 'B'.

(*Page* 4, *clause* **11.1**) :

a) *Line* 8 — Substitute '40' *for* 60'

b) *Last line* — Substitute '1.25' *for* '12.5'.

(*Page* 4, *clause* **12.1**) – Insert the following after (g):

'h) Class of fire, that is, A & B.'

(CED 22)

AMENDMENT NO. 3 APRIL 2003
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50-LITRE CAPACITY — MECHANICAL FOAM TYPE — SPECIFICATION

(*Page* 4, *clause* **10.3**) — Substitute the following for the existing :

'**10.3** Each extinguisher shall be marked with letters A and B, indicating their suitability for respective classes of fires as laid down in IS 2190. The letters A and B shall be of 2.5 ± 0.5 cm size printed in black colour, centrally contained in a square of 4 ± 0.5 cm size. The square shall be coloured cream (lemon yellow) conforming to shade No. 355 of IS 5.'

(CED 22)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 4 AUGUST 2003
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50-LITRE CAPACITY — MECHANICAL FOAM TYPE — SPECIFICATION

(*Page* 2, *clause* **7.12**) — Insert 'minimum' after '25 mm'.

(CED 22)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 5 APRIL 2005
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50-LITRE CAPACITY — MECHANICAL FOAM TYPE — SPECIFICATION

(*Page* 1, *clause* 3) — Substitute '50 ± 0.5 l' *for* '50 l' at the end.

(*Page* 1, *clause* 7.1) — Substitute the following for the existing and renumber the subsequent clauses:

7.1 The cylinder shall be of welded construction having cold or hot drawn cylindrical portion with hemi-spherical elliproidal or torispherical ends welded to it or two halves (upper half shorter) cold or hot drawn having dome and bottom dish of hemi-spherical or ellipsoidal or torispherical and circumferentially welded together. A cylindrical skirt having minimum 25 mm height shall be welded to the bottom dish.

7.1.1 Where carrying handle and/or supporting fittings are fitted to the body, these shall be either welded or brazed. The carrying handle shall be made of mild steel or stainless steel rod not less than 6 mm in diameter or fabricated out of mild steel or stainless steel sheets of same thickness as the body and the clamp for holding the foam making nozzle shall be of mild steel sheet/plastic having thickness not less than that of the body.

7.2 Body

The material used in the construction of extinguisher bodies shall be weldable. The filler materials shall be compatible to the body steel to given good welds. A cylindrical ring shall be fitted/welded to the bottom dish. Minimum wall thickness of the body shall be calculated using the formula:

a) For carbon steel bodies

$$t = \frac{D}{300} + 0.7$$

b) For austenitic stainless steel bodies,

$$t = \frac{D}{600} + 0.3$$

where

t = minimum thickness, in mm; and

D = external diameter of the body, in mm.

(*Page* 2, *clause* **7.7**) — Delete.

(*Page* 3, *clause* **9.1**) — Substitute the following for the existing:

9.1 All internal and external surfaces of the body shall be completely epoxy powder coated to minimum 0.050 mm thickness. The thickness of the coating shall be measured as given in IS 3203. The internal surface of the body shall be plastic/rubber coated and lining shall be of a minimum thickness of 0.5 mm as an alternative to powder coating.

9.1.1 *Test for Adhesion of Plastic Lining (Type Test)* — Subject the unfilled extinguisher to a pressure 15 kgf/cm^2 and store for 120^{+4}_{-0} h at 27 ± 5°C.

Release the pressure and examine the extinguisher internally for cracking, separation from the wall of the body or lifting of the lining, and bubbles between the lining and the body.

(*Page* 4, *clause* **9.1.1**) — Renumber '**9.1.1**' as '**9.2**' and delete ' to lead-tin alloy' from last line.

(*Page* 4, *clause* **10.1**) — Insert 'or Post Office Red' after 'fire red' and 'or No. 538' after 'No. 536'.

(CED 22)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 6 MAY 2006
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50-LTIRE CAPACITY — MECHANICAL FOAM TYPE — SPECIFCATION

[*Page* 1, *clause* 7.1.1 (*see also Amendment No.* 5)] — Substitute '20 mm' *for* '6 mm'

(*Page* 3, *clause* 7.1.4) — Substitute '300 g' *for* '300^{+1}_{-3} g'

(CED 22)

Reprography Unit, BIS, New Delhi, India

AMENDEMENT NO. 7 SEPTEMBER 2006
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50-LITRE CAPACITY — MECHANICAL FOAM TYPE — SPECIFICATION

[*Page* 4, *clause* 12 (*see also Amendment No.* 1)] – Substitute 'ADDITIONAL' *for* 'OPTIONAL'.

(CED 22)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 8 AUGUST 2007
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50-LITRE CAPACITY MECHANICAL FOAM TYPE — SPECIFICATION

[*Page* 1, *clause* 7.1, *fifth line* (*see also Amendment No.* 5)] — Insert the following after first sentence:

'However vertical welding is also permitted, as higher capacity extinguishers may have 3 piece welding.'

(CED 22)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 9 NOVEMBER 2008
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50 Litre CAPACITY — MECHANICAL FOAM TYPE — SPECIFICATION

(*Page* 2, *Table* 1, *Sl No.* 4, *col* 4) — Substitute 'IS 5382' *for* 'IS 538'.

[*Page* 3, *clause* 7.14 (*see also Amendment No.* 6)] — Substitute '7.14' *for* .1.4'.

ED 22)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 10 FEBRUARY 2010
TO
IS 13386 : 1992 FIRE EXTINGUISHER — 50-LITRE CAPACITY — MECHANICAL FOAM TYPE — SPECIFICATION

(*Page* 3, *clause* **10.1**) — Substitute the following for the existing:

"Each extinguisher body except stainless steel body shall be painted either with epoxy powder coating or synthetic enamel paint. The shade shall be 'Fire Red' or 'Post Office Red' conforming to Shades No. 536 or 538 of IS 5. Stainless steel body shall be buffed.

NOTES

1 Whenever epoxy powder coating is applied on the external surface of mild steel body for anti-corrosive treatment, synthetic enamel paint coating is not required.

2 The body of extinguisher shall be of good finish, clear of all burrs and sharp edges."

(*Page* 4, *clause* **10.4**) — Delete.

(CED 22)

Reprography Unit, BIS, New Delhi, India

Indian Standard

FIRE EXTINGUISHER – 50-LITRE CAPACITY – MECHANICAL FOAM TYPE – SPECIFICATION

1 SCOPE

This standard lays down the requirements regarding material, shape, construction, charge, anti-corrosion treatment and tests for 50 litre capacity mechanical foam fire extinguisher, mounted vertically on trolley wheels.

2 REFERENCES

The Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 CAPACITY

The total liquid capacity of the container when filled to the specified level, shall be 50 l.

4 PRINCIPLE

The mechanical foam extinguisher is operated in upright position puncturing the seal disc of gas cartidge attached, thus allowing the gas to enter on top of the liquid inside the container and pushing the liquid out through the hose and foam making branchpipe which aerates the liquid into foam.

5 MATERIAL

The materials for construction are given in Table 1.

6 SHAPE

The shape of the body of the mechanical foam extinguisher shall be cylindrical with outside diameter of 300 ± 25 mm and thickness of mild steel sheet shall be not less than 3·15 mm nominal.

7 CONSTRUCTION (FOR ILLUSTRATION, *see* FIG. 1)

7.1 General

The top dome and bottom dish of the body shall be without reverse of curvature and shall be dished outwards to a radius not exceeding the outside diameter of the body to which these are fixed or of which one or both form a part if solid drawn therewith.

7.1.1 Nonferrous metal parts shall be mechanically tightened and soldered, if needed, or brazed to the body.

7.2 Body

Circumferential and horizontal joints of the body shall be of welded type.

7.2.1 The welded construction be one of the types given below and shall conform to Indian Standard mentioned against each:

a) Spot welding (for attachment of fittings only) shall conform to IS 819 : 1957 and

b) Metal arc welding shall conform tc IS 9595 : 1980.

7.3 Carrying Handle

The carrying handle shall be made of mild stee rod or tube of not less than 16 mm diameter If tube, the thickness of the sheet used shal be not less than 1·25 mm.

7.4 Neck Ring

The neck ring shall provide a clear opening o not less than 75 mm diameter. It shall hav parallel screw threads conforming to class A o IS 2643 (Part 1) : 1975 for an effective lengt of not less than 28 mm. The neck ring shall b firmly screwed to the body by welding.

7.5 Cap

The cap shall be threaded for not less tha 25 mm effective length with parallel thread conforming to class A of IS 2643 (Part 1) 1975. At least four holes of not less tha 2·5 mm diameter each shall be drilled throug threads of the cap to form vents. The centr of the vent holes shall be 6·5 mm from th face of the cap joint washer.

7.6 Snifter Valve

A snifter valve (breathing device) shall b fitted to extinguishers for upright type and th design shall be such that when variation i atmospheric temperature is within ± 10° there shall be no spouting of liquid throug nozzle.

Table 1 Materials of Construction of Various Parts of Fire Extinguisher

(*Clause* 5.[illegible])

Sl No.	Component	Material	Requirements, Relevant IS
1	Body	Mild steel sheet	Any grade of IS 1079 : 1978
2	Neck ring	i) Leaded tin bronze ii) Mild steel pipe	Grade LTB 2 of IS 318 : 1981 IS 1239 (Part 1) : 1979
3	Cap	Leaded tin bronze	Grade LTB 2 of IS 318 : 1981
4	Cap washer	Rubber	Requirements in respect of hardness as applicable to Type 3 of IS 538 : 1985 and also acid/alkali resistant (*see* Note)
5	Safety valve	Brass	Type I of IS 319 : 1974
6	Spring	Spring steel	Grade 1 of IS 4454 (Part 1) : 1981
7	Siphon tube	i) Mild steel ii) Brass iii) HDPE iv) Copper	IS 3601 : 1984 Alloy No. 2 of IS 407 : 1981 IS 4984 : 1987 IS 1545 : 1982
8	Discharge fittings	i) Leaded tin bronze ii) Brass	Gr LTB 2 of IS 318 : 1981 Gr 2 of IS 291 : 1989, Type 1 of IS 319 : 1974
9	Foam making branch pipe	i) Aluminium alloy ii) Leaded tin bronze iii) Plastic	Gr 4450 or 4425 of IS 617 : 1975 Gr LTB 2 of IS 318 : 1981 IS 7328
10	Gas cartridges		IS 4947 : 1985
11	Hose	Braided rubber plastic	Having bursting pressure of not less than 50 kg/cm²
12	Snifter valve	i) Brass ii) Stainless steel	Type 1 of IS 319 : 1974 Grade 04Cr18Ni10 of IS 6603 : 1972

NOTE — When a piece of 2·5 cm cut from any portion is dipped in 20 percent sulphuric acid/5 percent sodium hydroxide solution for 10 min, there shall be no sign of corrosion or damage.

7.7 Safety Pressure Release Valve

The cap or body should have a safety pressure release valve mechanism by which if the pressure inside the container exceeds 25 kg/cm², the safety pressure release valve will release the internal pressure automatically.

7.8 Liquid Level Indicator

The 50 l level of the solution inside the body shall be indicated on the exterior of the body. It shall also be permanently indicated in the interior, or means shall be provided to demonstrate that the solution level is correct.

7.9 Hose

The discharge hose shall have a bore of not less than 12·5 mm and a length of not less than 3 m.

7.10 Foam Making Branch and Other Discharge Fittings

The design of the foam making branch and other discharge fittings shall be such that when the extinguisher is set in operation, it shall be capable of discharging foam as in **11.1.**

7.11 Syphon Tube

The syphon tube shall be fitted inside the body.

7.12 Drain Plug

At the bottom of the body a drain plug of size 25 mm with rubber washer shall be fitted.

7.13 Wheeled Carriage

The fire extinguisher shall be provided with wheeled carriage with rubber – tyred wheels of size 250 mm × 50 mm × 25 mm and axle of mild steel rod of 25 mm minimum diameter.

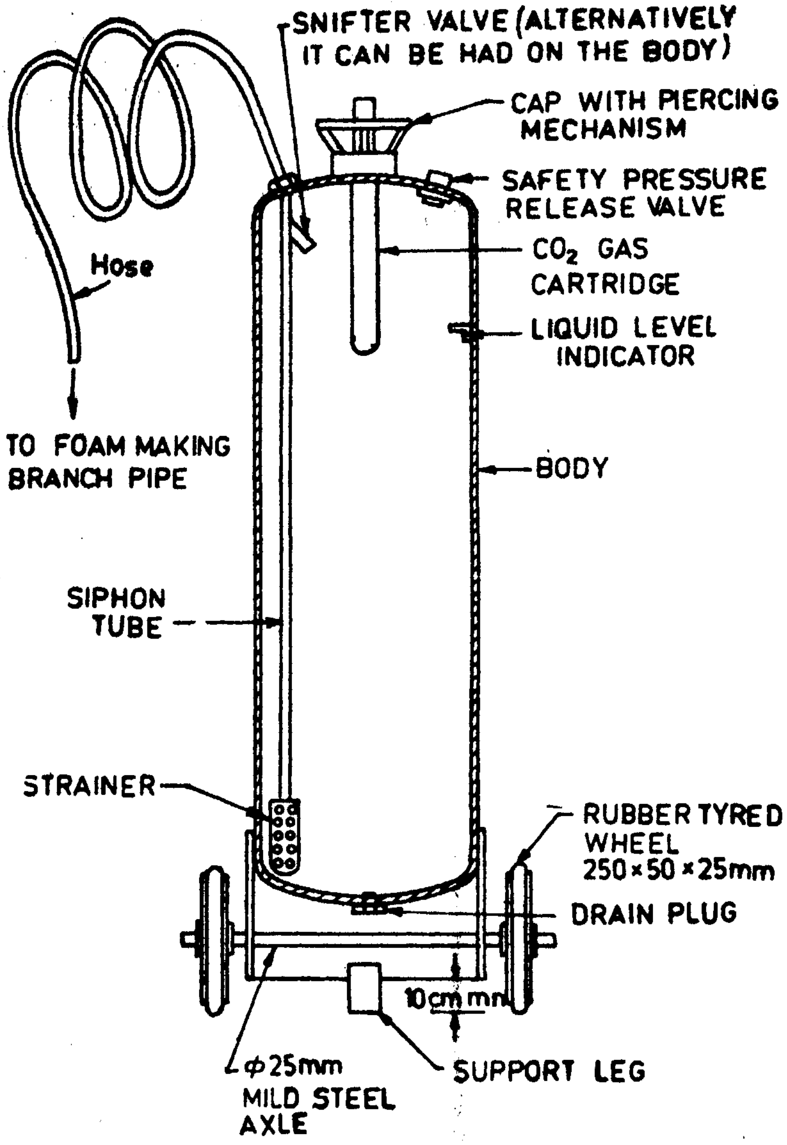
SNIFTER VALVE (ALTERNATIVELY IT CAN BE HAD ON THE BODY)
CAP WITH PIERCING MECHANISM
SAFETY PRESSURE RELEASE VALVE
CO_2 GAS CARTRIDGE
LIQUID LEVEL INDICATOR
Hose
TO FOAM MAKING BRANCH PIPE
BODY
SIPHON TUBE
STRAINER
RUBBER TYRED WHEEL 250×50×25mm
DRAIN PLUG
10cm min
ϕ25mm MILD STEEL AXLE
SUPPORT LEG

FIG. 1 50-LITRE CAPACITY MECHANICAL FOAM TYPE EXTINGUISHER

The fitting shall ensure the lowest part of the body remains not less than 10 cm above the ground when it is in the vertical position.

7.14 Gas Cartridge

The capacity of gas cartridge shall not exceed 300^{+10}_{-3} g.

8 CHARGE

The charge shall consist of foam concentrate conforming to IS 4989 (Part 2) : 1984 and quantity not less than 3 l (for 6 percent concentrate) or 1·5 l (for 3 percent concentrate) and balance quantity of water to make the foam water solution to 50 l.

9 ANTI-CORROSIVE TREATMENT

9.1 All internal surfaces of the body be completely coated with lead -tin alloy (tin not less than 10 percent), applied by electrolytic process or by hot dipping process to a thickness of not less than 0·012 mm. The thickness of the coating shall be measured as given in IS 3203 : 1982. The external surface of the body and both surfaces of siphon tube shall also be subjected to this anti-corrosive treatment. There shall be no visible uncoated area both internally or externally.

9.1.1 Phosphating in accordance with the provisions of IS 3618 : 1966 may be applied on the external surface of the body as an alternative to lead-tin alloy.

10 PAINTING

10.1 Each extinguisher shall be painted fire red conforming to shade No. 536 of IS 5 : 1978.

10.2 A picture showing a man operating the extinguisher in the correct manner shall be shown on the body of the extinguisher.

10.3 Each extinguisher shall be marked with letter B indicating the suitability for class B as laid down in IS 2190 : 1991. The letter B shall be of 2·5 cm size printed in black colour, centrally contained in square of 4 cm size. The square shall be coloured cream (lemon yellow conforming to shade No. 355 of IS 5 : 1978).

10.4 The paint shall conform to IS 2932 : 1974.

11 TEST REQUIREMENT

11.1 The extinguisher shall be discharging not less than 90 percent by mass of the actual rated capacity of the extinguisher, when the extinguisher is set into operation under normal temperature conditions of 27 ± 5°C, the foam solution shall be expelled in the form of a foam jet which will maintain a throw of not less than 10 m for the minimum period of 60 seconds. The maximum period of discharge of minimum 90 percent of the liquid shall be 180 seconds. The test shall be carried out so that the stream is discharged in horizontal direction in still air conditions from a height of 12·5 m from the ground.

11.2 The foam produced shall have minimum expansion 6 and 25 percent, drainage time 70 to 120 seconds and formation of film as per IS 4989 (Part 2) : 1984.

11.3 The extinguisher body and the cap (without the safety release valve) shall be tested separately to an internal hydraulic pressure of 3·0 MN/m^2 (30 kgf/cm^2) for a period of 2 min. During this test, it shall not show any sign of leakage.

11.4 In case of hydraulic burst failure test for body, the mechanical failure shall not occur at a pressure of less than 4·5 MN/m^2 (45 kgf/cm^2).

12 MARKING

12.1 Each extinguisher shall be clearly and permanently marked with the following information:

a) Indication of the source of manufacture;

b) Method of operation in prominent letters;

c) The word 'MECHANICAL FOAM FIRE EXTINGUISHERS';

d) The capacity of extinguisher in litres;

e) The words 'After discharge the extinguisher must be washed out carefully with fresh water using at least two changes in prominent letter;

f) A declaration to the effect that the body of the extinguisher has been tested to pressure of 3·0 MN/m^2 (30 kgf/cm^2); and

g) Year of manufacture.

12.1.1 The extinguisher may also be marked with Standard Mark. Details for use of Standard Mark may be obtained from the Bureau of Indian Standards.

13 SAMPLING AND CRITERIA FOR CONFORMITY

The details of sampling and criteria for conformity are given in Annex B.

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
5 : 1978	Colour for ready mixed paints and enamels (*third revision*)
291 : 1989	Naval brass rods and sections for machining purposes – Specification (*third revision*)
318 : 1981	Leaded tin bronze ingots and castings (*second revision*)
319 : 1974	Free cutting brass bars, rods and sections — Specification (*fourth revision*)
407 : 1981	Brass tubes for general purposes (*third revision*)
410 : 1977	Cold rolled brass sheet, strip and foil (*third revision*)
617 : 1975	Aluminium and aluminium alloys ingots and castings for general engineering purposes (*second revision*)
819 : 1957	Code of practice for resistance spot welding for light assemblies in mild steel
1079 : 1988	Hot-rolled carbon steel sheet and strip (*fourth revision*)
1239 (Part 1) : 1979	Mild steel tubes, tubulars and other wrought steel fittings : Part 1 Mild steel tubes (*fourth revision*)
1545 : 1982	Solid drawn copper alloy tubes for condenser and heat exchangers (*second revision*)
2190 : 1992	Code of practice of selection, installation and maintenance of portable first-aid fire extinguishers (*second revision*)
2643 (Part 1) : 1975	Dimensions for pipe threads fastening purposes: Part 1 Basic profile and dimensions (*first revision*)
2932 : 1974	Enamel, synthetic, exterior, (a) undercoating, (b) finishing (*first revision*)
3203 : 1982	Methods of testing local thickness of electroplated coatings (*first revision*)
3601 : 1984	Steel tubes for mechanical and general engineering purposes (*first revision*)
3618 : 1966	Phosphate treatment of iron and steel for protection against corrosion
4454 (Part 1) : 1981	Steel wires for cold formed springs: Part 1 Patented and cold drawn steel wires-unalloyed (*first revision*)
4947 : 1985	Gas cartridges for use in fire extinguishers – Specification (*second revision*)
4984 : 1987	Specification for high density polyethylene pipes for potable water supplies, sewage and industrial effluents (*third revision*)
4989 (Part 2) : 1984	Specification for foam concentrate for producing mechanical foam for fire fighting: Part 2 Aqueous film forming foam (AFFF)
5382 : 1985	Rubber sealing rings for gas mains, water mains and sewers (*first revision*)
6529 : 1972	Stainless steel blooms, billets and slabs for forging
6603 : 1972	Stainless steel bars and flats
7328	High density polyethylene materials for moulding and extrusion
9595 : 1980	Recommendations for metal arc welding of carbon and carbon manganese steels

ANNEX B

(*Clause* 13)

SAMPLING AND CRITERIA FOR CONFORMITY

B-0 GENERAL

B-0.1 The risk involved in failure of a fire extinguisher to work when needed is extremely large. Fire extinguishers, therefore, ought to have a high degree of reliability of performance during the entire period of its service. It can be achieved only through adequate design and control at all stages of manufacture and assembly.

B-1 SAMPLING

B-1.1 Lot

All fire extinguishers of the same type, shape, design and capacity, produced by the same manufacturer from similar materials under almost identical conditions of manufacture shall be grouped together to constitute a lot.

B-1.2 Each lot shall be considerd individually for the purpose of evaluation of quality in accordance with this specification.

B-1.2.1 The number of samples for testing to be taken at random from a lot and the criteria for conformity shall be as given in **B-1.2.2** and **B-1.2.3**.

B-1.2.2 From each lot a number of samples as indicated in col 2 of Table 2 shall be selected at random.

B-1.2.3 They shall be examined visually, as far as possible, in respect of requirements specified in **4** to 7, **10** and **12** and then in respect of hydraulic pressure test (*see* **11.3**) and corrosion test (*see* **9**).

B-1.2.3.1 All the samples tested shall pass these tests for the lot to be declared to conform to these requirements.

B-1.2.4 In respect of performance test (*see* **11.1**), one sample shall be tested for this property and the sample shall pass this test for the lot to be declared to conform to this requirements.

B-1.2.5 In respect of bursting pressure (*see* **11.4**) one type test shall be done and these should conform to the requirements laid down in the specification.

B-1.2.6 In the absence of a certificate from a manufacturer about conformity of specifications for the various components (*see* **5**) and the charge (*see* **8**) from a sample fire extinguisher, such items shall be taken separately and examined individually in respect of the relevant requirements laid down in the specification. The lot shall be considered satisfactory if all the items satisfy the relevant requirements of this specification.

Table 2 For Lots Produced under Quality Control System

(*Clause* B-1.2.2)

No. of Items in the Lot	Sample Size
Up to 25	3
26 to 50	5
51 to 100	8
101 to 200	8 percent

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